

# NATIONAL AIR INTELLIGENCE CENTER



WUHAN INSTITUTE OF PHYSICS



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PREPARED BY:

TRANSLATION SERVICES  
NATIONAL AIR INTELLIGENCE CENTER  
WPAFB, OHIO

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**Wuhan Institute of Physics**

The Wuhan Institute of Physics was established in 1958. In 1962, it was merged with the Institute of Electronics, the Institute of Atomic Energy, the Institute of Semiconductors, and more than ten other research units in the five south-central provinces to form the South-Central Institute of Physics. From 1967 to 1970, it was incorporated into the Sixteenth Academy

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of the National Defense Science Committee. Afterwards, it was put under the jurisdiction of Hubei province. In 1978 it was returned to the Chinese Academy of Sciences and its name was changed to the present name.

The institute has (according to 1989 statistics) 458 workers and staff members, 337 of whom are scientists and technicians (including 48 senior scientists and technicians and 77 middle-level scientists and technicians), and has recruited 52 Master's-level graduate students. At present, its key areas of research are as follows: (1). Spectroscopy research, primarily concentrated in areas of nuclear magnetic resonance, such as solid-state high resolution and other new technology and methods, dual resonance, two-dimensional spectra, multiple quantum resonance, relaxation, and basic theoretical research in molecular dynamics, boundary phenomena, and other areas; its applied research includes applications of nuclear magnetic resonance in chemistry, biological chemistry, and medical science; effort has also been put into research on development of instruments. (2). Atomic and molecular physics research, mainly on atomic and molecular structures, as well as theories of and experiments on interatomic and intermolecular interactions and atomic and molecular interactions with radiation fields. (3). Atomic time frequency-standard research, primarily on laser pumping and microwave resonance, miniature hydrogen-atom frequency scales, and frequency stability measurement technology. (4). Acoustical research, mainly in the two fields of acoustical imaging (ultrasonic diffraction flaw

imaging, sound signal processing, and other areas of research) and ultrasonic testing (theories, methods, and equipment for biological effects of ultrasound, transmission of ultrasound through human media, and non-destructive ultrasonic industrial testing). (5). Ionospheric physics and electric wave propagation research, predominantly on perturbation of the ionosphere in the solar-terrestrial relationship and related structural changes and dynamic processes. The Academy of Science approved the institute's spectroscopy and atomic and molecular physics laboratories to be among the first group of laboratories opened up to China and foreign countries.

Since its establishment, the institute has realized 130 achievements in scientific research, over 20 of which were major scientific and technical achievements, and 16 of which won national scientific conference achievement awards. The major achievements were: a paramagnetic resonance spectrometer; a nuclear quadrupole resonance spectrometer; the first 360 MH superconducting nuclear magnetic resonance spectrometer and the first oil-seed oil content nuclear magnetic resonance analysis meter ever developed by China; a rubidium maser<sup>1</sup> atomic time frequency scale (primarily used in attitude and position control of high-speed flying bodies) whose primary targets have attained advanced international levels, which was awarded first prize by the National Defense Science Council, and which also won first prize for scientific and technological progress in 1985; a hydrogen atom frequency scale; a passive hydrogen atom frequency scale; many non-destructive ultrasound testing devices for special components used in national defense, and so on.

The institute has had the following directors: Cheng Jie, Wang Tianjuan, Zhang Chengxiu, and Wu Qinyi. Present director: Ye Chaohui.

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<sup>1</sup> Could also be "laser."